UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
3616 W. Thomas, Suite 6
Phoenix, Arizona 85019

2-21-92-F-104

December 27, 1991

4021

MEMORANDUM

To: District Manager, Arizona Strip District, Bureau of Land Management, St. George, Utah

From: Field Supervisor

Subject: Biological opinion for the Rio Virgin Telephone (Jacobson) Right-of-Way (A-25545, CE AZ-010-91-007)

This Biological Opinion (BO) responds to your request dated November 20, 1991, for initiation of formal consultation with the Fish and Wildlife Service (FWS) pursuant to Section 7 of the Endangered Species Act (Act) of 1973, as amended. The action under consultation is the granting of a right-of-way (R/W) for the installation of a telephone service line. The desert tortoise (*Gopherus agassizii*), a federally listed threatened species, may be impacted by your action. Your request for initiation was received on November 22, 1991.

This Biological Opinion was prepared using information contained in your Section 7 evaluation dated November 18, 1991 (USDI-BLM 1991a); a memorandum dated November 20, 1991 (USDI-BLM 1991b); Categorical Exclusion Review, CE AZ-91-010-007 not dated (USDI-BLM 1991c); Notice of Trespass dated November 19, 1991 (USDI-BLM 1991d); information in our files; and discussions with your staff.

Biological Opinion

It is our biological opinion that the proposed installation of a telephone service line to Mr. Warren Jacobson's property is not likely to jeopardize the continued existence of the threatened Mojave population of the desert tortoise.

Description of the Proposed Action

Mr. Jacobson submitted a request for an amendment to an existing R/W. The Bureau of Land Management (BLM) granted a R/W to Mr. Jacobson (USDI-BLM 1990a). The BLM requested initiation of formal Section 7 consultation on the proposed R/W (USDI-BLM 1990b). The R/W was evaluated by FWS in a BO (USDI-FWS 1990) issued on April 4, 1990. The R/W begins at Highway 91, follows a ridge down the side of a drainage, across a bench and steep slope, and down to the floodplain of the Virgin River. The road provides access to the North 1/2 of Lots 3 and 4, located in the northern half of the NW¼ NW¼ Sec.2, T. 39 N., R. 15 W. and the northern half of the NW¼ NW¼ Sec.2, T. 39 N., R. 15 W.

2-21-92-F-104

December 23, 1991

MEMORANDUM

To: District Manager, Arizona Strip District, Bureau of Land Management, St. George, Utah

From: Field Supervisor

Subject: Biological opinion for the Rio Virgin Telephone (Jacobson) Right-of-Way (A-25545, CE AZ-010-91-007)

This Biological Opinion (BO) responds to your request dated November 20, 1991, for initiation of formal consultation with the Fish and Wildlife Service (FWS) pursuant to Section 7 of the Endangered Species Act (Act) of 1973, as amended. The action under consultation is the granting of a right-of-way (R/W) for the installation of a telephone service line. The desert tortoise (*Gopherus agassizii*), a federally listed threatened species, may be impacted by your action. Your request for initiation was received on November 22, 1991.

This Biological Opinion was prepared using information contained in your Section 7 evaluation dated November 18, 1991 (USDI-BLM 1991a); a memorandum dated November 20, 1991 (USDI-BLM 1991b); Categorical Exclusion Review, CE AZ-91-010-007 not dated (USDI-BLM 1991c); Notice of Trespass dated November 19, 1991 (USDI-BLM 1991d); information in our files; and discussions with your staff.

Biological Opinion

It is our biological opinion that the proposed installation of a telephone service line to Mr. Warren Jacobson's property is not likely to jeopardize the continued existence of the threatened Mojave population of the desert tortoise.

Description of the Proposed Action

Mr. Jacobson submitted a request for an amendment to an existing R/W. The Bureau of Land Management (BLM) granted a R/W to Mr. Jacobson (USDI-BLM 1990a). The BLM requested initiation of formal Section 7 consultation on the proposed R/W (USDI-BLM 1990b). The R/W was evaluated by FWS in a BO (USDI-FWS 1990) issued on April 4, 1990. The R/W begins at Highway 91, follows a ridge down the side of a drainage, across a bench and steep slope, and down to the floodplain of the Virgin River. The road provides access to the North 1/2 of Lots 3 and 4, located in the northern half of the NW¼ NW¼ Sec.2, T. 39 N., R. 15 W. and the northern half of the NW¼ NW¼ Sec.2, T. 39 N., R. 15 W.

Mr. Jacobson requested a second amendment to the R/W (USDI-BLM 1991e). By a BLM request (USDI-BLM 1991f) the FWS provided a second BO (USDI-FWS 1991) on an amendment to the original R/W (USDI-BLM 1991f) that connected the existing

road to a part of Mr. Jacobson's property. The R/W consisted of upgrading an existing track (40 feet by 650 linear feet) across BLM land.

Mr. Jacobson applied for a third R/W (A-25545) from BLM for the placement of a telephone service line in the center of the existing road construction (USDI-BLM 1991b). The R/W was granted to Mr. Jacobson on the basis of a Categorical Exclusion (CE AZ-91-010-077) which would have no adverse effect on the desert tortoises (USDI-BLM 1991c).

The site for the installation of the subject telephone service line was selected because of its location adjacent to the existing R/W. The line was installed near the road to use areas that have previously sustained human impacts to tortoise habitat integrity. Access to the construction site was provided by the newly constructed access road.

During the course of construction, it was determined by Mr. Jacobson that the line would require installation adjacent to the proposed road rather than in the center of the road. Mr. Jacobson installed the line. The action was not authorized by the BLM. A Notice of Trespass, dated November 19, 1991, was sent by BLM to Mr. Jacobson and the Rio Virgin Telephone Company.

Between October 23 and November 7, 1991, installation of the line occurred within the R/W near or in the existing road. The installation of the line was completed by digging a trench with a back-hoe. The trench was filled with dirt to restored the morphological integrity of the R/W. This biological opinion is written to determine the possible effects of the proposed action after the completion of the installation of the telephone service line.

The location of R/W is

A-25545, T. 40 N., R. 16 W., sec. 34 and 35 G&SRM ?

Species Account and Environmental Baseline

On August 4, 1989, the FWS published an emergency rule (54 FR 32326) that afforded endangered status to the Mojave population of the desert tortoise. Subsequently, on April 2, 1990, the Mojave population of desert tortoises was listed as threatened throughout its range north and west of the Colorado River (55 FR 12178). No critical habitat has been designated in Arizona, California, or Nevada.

Although the Mojave population of desert tortoises is widely distributed, the range of the population has been fragmented and tortoise numbers have declined (Berry 1978, Berry 1989). Desert tortoise population declines have been attributed to the encroachment of human activities (Berry 1978, Berry 1989). These activities include collecting, motor vehicle mortality, off-highway vehicle (OHV) mortality, and shooting. Habitat loss by development, road construction, powerlines, pipelines, agricultural practices, mineral extraction, and other human activities, reduces tortoise numbers. Habitat modification by grazing, or any other modification of native vegetative communities and terrain morphology, has caused population declines (Berry 1978, Berry 1989). Further information on the range, biology, ecology, and population status of the desert tortoise can be found in Berry (1984), Duck

and Snider (1988), Hohman and Ohmart (1980), Karl (1983), Luckenbach (1982), and Weinstein et al.. (1987).

The soils on the site are composed of gravelly, fine, sandy loams on 2 to 40% slopes with south or east aspects. The primary vegetation consists of creosotebush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), big galleta (*Hilaria rigida*), Indian ricegrass (*Oryzopsis hymenoides*), and bladdersage (*Salazaria mexicana*). The area has been extensively disturbed as indicated by dirt roads, vehicle tracks, and trash (BLM memorandum, April 17, 1991).

Surveys in 1990 near the road adjacent to the R/W did not find desert tortoise sign. However, surveys of the surrounding area found a tortoise carapace, scat, and potential sheltersites within 0.25 mile of the R/W.

The site was surveyed for desert tortoise sign by a BLM wildlife biologist and an Arizona Game and Fish Department (AGFD) research assistant on March 20, 1991. Transects (10 meters apart) were walked across the parcel to attempt 100% coverage of the site. An additional area extending 100 meters from the site boundaries was also inspected. The survey found one active sheltersite along the top of the steep slope. Scat was present within the sheltersite. No tortoises or tortoise carcasses were found.

The greatest densities of desert tortoises in the general area were reported by Hohman and Ohmart (1980) and Duck and Snider (1988) to be 50 tortoises per square mile. Densities were estimated to be below 5 tortoises per square mile near the project site (USDI-BLM memorandum, April 17, 1991).

The project area once was better desert tortoise habitat, but the population has become isolated by construction of Highway 91 and Interstate 15. The Virgin River is also a barrier to tortoise movements. Although the area between the river and the freeway may have once provided habitat, the habitat has been so altered that it can no longer support a tortoise population (BLM memorandum, April 17, 1991). West of the project area, the City of Mesquite, Nevada, and development on private lands (Peppermill Golf Course and Arvada Game Ranch) in Arizona, have contributed to the isolation.

Effects of the Proposed Action on the Listed Species

This proposed action is in an area that is near private holdings and adjacent to public lands east of Mesquite, Nevada. The site has received substantial use and has been adversely effected by past activities. The proposed project area is isolated from the adjacent, relatively undisturbed, tortoise habitat. Existing habitat quantity and quality on the site are poor and will be further degraded by the action. Additional urban development will likely continue to occur in the general vicinity of this proposed action.

The proposed project will alter 1.45 acres of desert tortoise habitat. Tortoises may be killed or injured by vehicular crushing and may be harassed through removal from the construction area. Additional indirect impacts may occur from noise produced by vehicles and construction equipment (Bondello 1976, Bondello et al.. 1979) and the possible attraction of ravens to the area (Berry 1985, USDI-BLM 1990c).

The FWS does not expect the impacts from installation of the line to reduce appreciably the likelihood of survival and recovery of the desert tortoise. The proposed R/W traverses a low density population of desert tortoises which has already been isolated by roads.

Cumulative Effects

Cumulative effects are those effects of future non-Federal (State, local government, or private) activities on endangered and threatened species or critical habitat that are reasonably certain to occur in the foreseeable future. Future Federal actions are subject to the consultation requirements established in Section 7 of the Act and, therefore, are not considered cumulative to the proposed action.

Outdoor recreational activities, which may increase with an increased human population, have the potential to impact adversely desert tortoise habitat in the area. Off-road vehicle use is already extensive in the area. Off-road vehicles can kill tortoises on the surface or in burrows, damage their burrows and nests; damage vegetation used by the tortoise for cover or food; and compact the soil and inhibit the germination of plants used by the tortoises. Soil compaction may also interfere with tortoises being able to dig burrows.

Recreational target shooting is also widespread in the area and could harm desert tortoises. Other general recreational use, including camping, picnicking, sightseeing, hiking, bird watching, horse riding, and rock and mineral collecting can result in desert tortoise habitat destruction. Other human impacts associated with increased development include take of desert tortoises for pets, vandalism, and fire.

Lands to the east, south, and west of the action are privately owned. Some of these lands have been developed. Due to the land ownership pattern and the history of the area, it is likely that the area will be urbanized in the near future. The urban development may include roads, single family dwellings, mobile home trailer parks, public service and recreational facilities, roads, schools, and stores. The urbanization will decrease desert tortoise habitat quality and quantity and increase the potential for tortoise mortalities and habitat fragmentation, especially by increased vehicular traffic. Another adverse effect caused by urbanization is the increased harassment and mortality to desert tortoises by domestic dogs.

Incidental Take

Section 9 of the Act, as amended, prohibits any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species without a special exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Under the terms of Sections 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to, and not intended as part of the agency action, is not considered a prohibited taking provided that such taking is in compliance with this incidental take statement. The measures described below are nondiscretionary and must be

undertaken by the agency or made a binding condition of any grant or permit issued to the applicant, as appropriate.

The FWS anticipates that the following take could occur as a result of the activities associated with installation of the line. The level of take is based on the analysis of impacts provided above, results of tortoise surveys, and the protective and mitigative measures offered by the applicant or required by the BLM.

1. A total of 1.45 acres of tortoise habitat are anticipated to be destroyed and therefore taken during construction of the Rio Virgin Telephone (Jacobson) W/R.

Do you mean R/W ?

2. An unquantifiable number of tortoises are anticipated to be taken in the form of indirect mortality through predation by ravens drawn to trash on the construction sites or loss of habitat integrity.

3. An unknown number of tortoises are anticipated to be taken by construction activities

Reasonable and Prudent Measures

The FWS believes that the following reasonable and prudent measures are necessary and appropriate to minimize the take authorized by this Biological Opinion:

1. Measures will be taken to minimize harm to tortoises by any project-related activity.

2. Measures will be taken to minimize habitat disturbance due to project-related activities.

3. Measures will be taken to minimize predation of desert tortoises by ravens.

Terms and Conditions

In order to be exempt from the prohibitions of Section 9 of the Act, the BLM must ensure that the applicant complies with the following terms and conditions, which implement the reasonable and prudent measures described above.

1. To implement reasonable and prudent measure number 1, the following terms and conditions will be implemented:

   a. The construction area of the R/W will be inspected for tortoises and their burrows not more than one working day prior to any surface disturbing activities. The inspection will be conducted by a qualified tortoise biologist and will provide 100% coverage of the R/W. The area will be surveyed three times unless no tortoises are found on the second pass.

b. If any tortoises are found within construction areas after the initial removal of tortoises, all construction activities will cease until the tortoise has been removed by a qualified tortoise biologist, in accordance with Appendix A. The definition of "take" includes capture. Therefore, any unauthorized person who removes a tortoise from the site could violate Section 9 of the Act.

c. Tortoises removed from the project area will be released into undisturbed habitat 300 to 1000 feet from the collection site, well away from the project area. Tortoises removed from the project will be placed in the shade of a shrub or in an unoccupied burrow similar to the one where it was found, or in an artificially constructed burrow following the protocol provided in Appendix A. Tortoises will not be placed on lands not under the ownership of the BLM without the written permission of the landowner. Tortoises will be purposefully moved only by qualified tortoise biologists, solely for the purpose of moving them from harm.

If a suitable location can not be found, tortoises will be (1) provided to research or to translocation projects approved and permitted by the FWS, (2) provided to educational facilities possessing the appropriate State and Federal permits, or (3) made available for adoption. The FWS recommends that potential recipients of tortoises meet the guidelines developed by the AGFD.

Tortoises showing symptoms of Upper Respiratory Tract Disease will be left in the wild after gathering the data specified in Appendix A. To minimize the risk of spreading the Upper Respiratory Tract Disease, each tortoise will be handled with a separate pair of disposable gloves. All materials used to handle or contain tortoises will be used once and then discarded or sterilized. Cardboard boxes used to hold tortoises will be purchased new, used once, and then discarded.

d. Following construction, all areas requiring maintenance will be inspected for tortoises by a qualified tortoise biologist not more than one day prior to initiation of the work. Any tortoises located shall be removed in accordance with provisions b and c above and Appendix A.

e. Construction and maintenance personnel working in desert tortoise habitat will be informed that the desert tortoise may occur in the R/W and requested to refrain from harming of harassing them.

2. To implement reasonable and prudent measure number 2, the following terms and conditions shall be implemented:

a. All habitat disturbance will be restricted to the R/W construction zone, which will be adequately marked or flagged prior to onset of construction. Construction vehicle traffic will be restricted to existing roads.

b. Habitat will be rehabilitated on the R/W that is effected by the back-hoe excavation and the installation of the telephone service line.

3. To implement reasonable and prudent measure number 3, the following term and condition will be implemented:

a. All litter from construction and maintenance activities will be handled in a manner that does not attract ravens to the work site.

Reporting Requirements

Upon locating dead, injured, or sick desert tortoises, initial notification must be made to the FWS's Division of Law Enforcement, Sr. Resident Agent Frank Shoemaker, Mesa, Arizona (Telephone: 602/379-6443). Instructions for proper handling and disposition of such specimens will be issued by the Division of Law Enforcement consistent with the provisions of this incidental take statement. Care must be taken when handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible condition. All tortoise remains will be frozen immediately and provided to an institution holding appropriate Federal and State permits per their instructions.

Prior to construction, the BLM will make arrangements with the institution regarding proper disposition of potential museum specimens. Should no institutions want the tortoise specimens, the remains may be disposed of in any appropriate manner. In conjunction with the care of sick or injured tortoises, or the preservation of biological materials from a dead tortoise, the BLM has the responsibility to ensure that information relative to the date, time and location of the tortoise when found, and possible cause of injury or death of each tortoise is recorded and provided to the FWS. Should injured animals be treated by a veterinarian and survive, the FWS should be contacted regarding final disposition of these tortoises. The FWS contact person is Jay Slack, Ecological Services, Phoenix, Arizona (Telephone: 602/379-4720 or FTS 261-4720).

The BLM will notify this office of all tortoises killed, injured, or removed from the project area within 3 days of each occurrence. Within 30 days after the completion of the project, the BLM will provide the FWS with a report detailing all tortoise-related activities undertaken in association with this project, including tortoise biologist activities, actual number of tortoises injured, killed, or moved, and effectiveness of the terms and conditions provided in this Biological Opinion.

If, during the course of the action, the amount or extent of the incidental take limit is exceeded, the BLM shall immediately notify the FWS in writing. If the incidental take limit is exceeded, to avoid violation of Section 9 of the Act, the BLM must immediately cease the activity resulting in the take and reinitiate consultation with the FWS. Operations must be stopped in the interim period between initiation and completion of the new consultation if it is determined by the FWS that the impact of the additional take will cause an irreversible and adverse impact on the species, as required by 50 CFR §

File Together w/ Horse-spacebar

402.14(i). The BLM should provide an explanation for the causes of the additional take.

Conservation Recommendations

Sections 2(c) and 7(a)(1) of the Act direct Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. The term "conservation recommendations" has been defined as FWS's suggestions regarding discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species, critical habitat, or regarding development of information. The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's section 7(a)(1) responsibilities for the species.

> All desert tortoise habitat should be examined for unnecessary roads. Illegal access routes should be blocked and reclaimed. This measure would reduce unauthorized access to the desert by off-road vehicles, collection of tortoises, and vandalism.

For the FWS to be kept informed of actions that either minimize or avoid adverse effects, or that benefit listed species or their habitats, the FWS requests notification of the implementation of any conservation recommendations.

Conclusion

This concludes formal consultation on granting a R/W for the Rio Virgin (Jacobson) R/W, as outlined in your November 20, 1991, request. As required by 50 CFR § 402.16, reinitiation of formal consultation is required if: (1) the amount or extent of incidental take is exceeded, (2) new information reveals effects of the agency action that may impact listed species or critical habitat in a manner or to an extent not considered in this opinion, (3) the agency action is subsequently modified in a manner that causes an effect to a listed species or critical habitat that was not considered in this opinion, or (4) a new species is listed or critical habitat designated that may be affected by the action. We would appreciate notification of your final decision on this action.

We appreciate the assistance and cooperation of your staff throughout this consultation process. In future written communication, please reference our file number 2-21-92-F-104. If we can be of further assistance, please contact Jay Slack, Ren Lohoefener, or me (Telephone: 602/379-4720 or FTS 261-4720).

Sam F. Spiller

cc: Assistant Regional Director, Fish and Wildlife Enhancement, Albuquerque, New Mexico (AWE)
State Director, Bureau of Land Management, Phoenix, Arizona

Director, Arizona Game and Fish Department, Phoenix, Arizona

Literature Cited

Berry, K. H. 1978. Livestock grazing and the desert tortoise. Transaction North American Wildlife and Natural Resources Conference. 43:505-519.

Berry, K. H. 1984. Preliminary investigations of shell wear in determining adult age groups in desert tortoises. Appendix 4. In Berry, K.H. (ed.) The status of the desert tortoise (Gopherus agassizii) in the United States. Report to USDI Fish and Wildlife Service from the Desert Tortoise Council on Order No. 11310-0083-81.

Berry, K. H. 1985. Avian predation on the desert tortoise (Gopherus agassizii) in California. U. S. Bureau of Land Management, Riverside, California. Report to Southern California Edison Company, Rosemead, California.

Berry, K. H. 1989. (Gopherus agassizi), desert tortoise. Pp. 5-7. In I. R. Swingland and M. W. Klemens, (eds.) The conservation biology of tortoises. Occasional Papers of the IUCN Species Survival Commission No. 5. Kelvyn Press, Inc., Broadview, IL 203 Pp

Bondello, M. C. 1976. The effects of high-intensity motorcycle sounds on the acoustical sensitivity of the desert iguana, Dipsosaurus dorsalis. M.A. Thesis, Biology Dept., California State University, Fullerton. 38 pp.

Bondello, M. C., A. C. Huntley, H. B. Cohen, and B. H. Brattstrom, 1979. The effects of dune buggy sounds on the telecephalic auditory evoked response in the Mojave fringe-toed lizards, Uma scoparia. Report, Contract number CA-060-CT7-2737, USDI-Bureau of Land Management, Riverside, California. 31 pp.

Duck, T. A. and J. Snider. 1988. An analysis of a desert tortoise population and habitat on the Beaver Dam Slope, Arizona. Report to the BLM, Arizona Strip District, St. George, Utah.

Fish and Wildlife Service. 1989. Endangered and threatened wildlife and plants: Emergency determination of endangered status for the mojave population of the desert tortoise. 54 FR 32326. August 4, 1989.

Fish and Wildlife Service. 1990. Endangered and threatened wildlife and plants: Determination of threatened status for the Mojave population of the desert tortoise. 55 FR 12178. April 2, 1990.

Hohman, J. and R. D. Ohmart. 1980. Ecology of the desert tortoise (Gopherus agassizii) on the Beaver Dam Slope, Arizona. Unpublished Report Contract No. YA-510-PH7-54 submitted to the Bureau of Land Management, Arizona Strip District, St. George, Utah.

Karl, A. E. 1983. The distribution, relative densities, and habitat associations of the desert tortoise, Gopherus agassizii, in Nevada. MS Thesis, California State University, Northridge, California. 111 pp.

Luckenbach, R. A. 1982. Ecology and management of the desert tortoise (Gopherus agassizii) in California. Pp. 1-37 In: North American Tortoises: Conservation and Ecology. R. B. Bury (ed.). U. S. Fish and Wildlife Service Wildlife Resource. Rept. 12.

U.S. Dept. of Interior, Bureau of Land Management. 1990a. Jacobson Road Right-Of-Way, A-23200. Arizona Strip District, St. George, Utah.

U.S. Dept. of Interior, Bureau of Land Management. 1990b. Request for Initiation of Formal Consultation on the Jacobson Road Right-Of-Way, A-23200. Arizona Strip District, St. George, Utah.

U.S. Dept. of Interior, Bureau of Land Management. 1990c. Draft raven management plan for the California Desert Conservation Area. California Desert District, Riverside, California.

U.S. Dept. of Interior, Bureau of Land Management. 1991a. Biological Evaluation: Rio Virgin Telephone (Jacobson) Right-Of-Way (A-25545, CE AZ-010-91-007), Arizona Strip District, St. George, Utah.

U.S. Dept. of Interior, Bureau of Land Management. 1991b. Request for Initiation of Formal Consultation on the Rio Virgin Telephone (Jacobson) Right-Of-Way (A-25545, CE AZ-010-91-007), Arizona Strip District, St. George, Utah.

U.S. Dept. of Interior, Bureau of Land Management. 1991c. Categorical Exclusion Review CE-AZ-010-91-007, Rio Virgin (Jacobson) Telephone Company Right-Of-Way, Arizona Strip District, St. George, Utah.

U.S. Dept. of Interior, Bureau of Land Management. 1991d. Notice of Trespass to Mr. Warren Jacobson and the Rio Virgin Telephone Company. Arizona Strip District, St. George, Utah.

U.S. Dept. of Interior, Bureau of Land Management. 1991e. Amendment to Jacobson Road Right-Of-Way, A-23200, Arizona Strip District, St. George, Utah.

U.S. Dept. of Interior, Bureau of Land Management. 1991f. Request for Reinitiation of Formal Consultation on the Jacobson Road Right-Of-Way, A-23200. Arizona Strip District, St. George, Utah.

U.S. Dept. of Interior, Fish and Wildlife Service. 1990. Biological Opinion on the Jacobson Road Right-Of-Way Amendment, 2-21-90-F-050, Phoenix, Arizona.

U.S. Dept. of Interior, Fish and Wildlife Service. 1991. Biological Opinion on the Jacobson Road Right-Of-Way, 2-21-90-F-050, Phoenix, Arizona.

Weinstein, M., K. H. Berry, and F. B. Turner. 1987. An analysis of habitat relationships of the desert tortoise in California. A report prepared for Southern California Edison Company. 96 pp.

Appendix A

Desert Tortoise Handling and Overwintering Procedures

(Note: Much of the information contained herein was obtained from Chapter III, Protocols for Handling Live Tortoises, in the Interim Techniques Handbook for Collecting and Analyzing Data on Desert Tortoise Populations and Habitats. This handbook is a cooperative effort among Federal and State agencies. Primary editor is Dr. Cecil Schwalbe of the University of Arizona, Tucson, Arizona. The information on handling tortoise eggs was developed by the Reno Field Station in consultation with Dr. Schwalbe, Betty Burge of Las Vegas, Nevada, and the Fish and Wildlife Service (FWS), Ventura Field Office.)

1. All desert tortoises shall be handled in a careful manner. This includes lifting the animal slowly, fully supporting the animal in an upright position, and completing various measurements in the minimum amount of time. A tortoise can be damaged or die of intestinal torsion. If a tortoise must be turned over on its back, this should be done gently. The fieldworker shall turn the tortoise over by carefully rolling it over on its side to its back, and return the tortoise to the upright position by rolling it back in the same direction. The tortoise shall not be rolled end over end, side over side, or spun.

   Tortoises, especially females, may be fatally damaged by blows, butting, or overturning, which results in egg yolk peritonitis brought on by seepage of egg yolk or breakage of shelled eggs into the peritoneal cavity. Handling of potentially gravid females shall be done very carefully.

   To prevent hyperthermia, on warm days a tortoise must be kept in the shade (of the fieldworker, a pack, other equipment, etc.) except during photography. Tortoises shall not be weighed, measured, etc. when air temperatures exceed 90°F (32°C) at 1.5 m (4.9 ft) above ground unless measures are taken to insure the animal does not overheat. Tortoises shall be placed in shaded areas during handling, and if the animal is to be held for a longer period, it shall be individually placed in a sterile cardboard box, placed in a shaded, cool location and returned to the site of capture or relocation at sunrise on the following day. CAUTION! TEMPERATURES ARE MUCH HIGHER NEARER THE GROUND. Take extreme caution to avoid overheating a tortoise whenever surface temperatures exceed 86°F (30°C). Shield the bulb of the thermometer from direct solar radiation and wind when measuring temperatures.

2. Because of the threat of Upper Respiratory Tract Disease (URTD), all tortoises shall be handled so as to minimize the chances of spreading the disease, even if URTD has not been documented in a given locality. All personnel handling tortoises must be initially trained using protocols developed by Dr. Cecil Schwalbe of the University of Arizona. These protocols will be used to minimize the spread of URTD. All personnel handling tortoises shall wear disposable latex or plastic gloves to prevent transmission of diseases among tortoises. Not more than one tortoise shall be handled with each pair of gloves.

   All equipment that comes in contact with any tortoise shall be sterilized before it is used on another tortoise. For example, triangular files for notching, calipers for measuring shell length,

rules, and other equipment should be sterilized by soaking in 95% isopropyl or ethyl alcohol for at least 20 minutes before using on another tortoise. A 25% solution of chlorine bleach may also be used, but bleach is extremely corrosive and may damage many types of equipment. Wooden rules should not be used; they are difficult to sterilize because of the porosity of the wood. Use metal or plastic rules instead.

To avoid sterilizing spring scales or weighing straps prior to weighing each tortoise, use individual "T-shirt" bags, the plastic bags with two handles that are used to bag groceries. The handles of the bag can be used to suspend the tortoise during weighing.

The fieldworker's clothes shall be changed completely, including shoes, before visiting other tortoise sites. Dr, Schwalbe defines a site as follows: "As a general rule, a single valley or desert mountain range would be considered one site, unless there were special circumstances, such as URTD confirmed in one part of a valley, but not thought to occur in other parts of that valley. In such an instance, a change of clothes would be necessary before visiting other parts of that valley." Always visit the site with known occurrence of URTD last to minimize the chance of spreading the disease. Vehicle undercarriages and tires shall be washed when travelling between sites where URTD is known or suspected to occur. The fieldworker is not required to wash vehicles if there are no confirmed reports of URTD on a study site. The fieldworker shall consider that wet soil carrying microbes will adhere to vehicles, and such microbes are less likely to die before a new study area is visited. It is advisable to wash a vehicle after driving in wet soil if feasible.

When transported by vehicle or confined, each tortoise shall be contained in a newly-purchased, clean cardboard box of an appropriate size. Boxes shall be discarded after use. Tortoises shall never be placed in automobile trunks or on floorboards in an unconfined manner. Tortoises shall never be placed in the bed of a truck over the catalytic converter as this area of the metal bed may become extremely hot. Tortoises must not be left unattended in vehicles; this measure is intended to eliminate accidental mortality caused by overheating. Truck beds and floorboards must be padded and travel shall be at speeds which eliminate unnecessary vibrations.

3. All tortoises removed from the project area and released into the wild as a result of mitigation measures for this project shall be individually marked, per Bureau of Land Management (BLM) standards (Attachment A-1). Notching and tagging are the current preferred methods for long-term marking and are supplemented with photographs and drawings. All four methods should be used to insure that over time the tortoise can be properly identified in future years.

Notching: "V" shaped notches are placed in the marginal scutes using a triangular file or, in the case of young tortoises, a nail clipper.

The bridge marginal scutes, that is, those marginal scutes that connect the carapace to the plastron (M4 through M7) shall not be notched because of the difficulty in identifying the shallow notches in later years. Care shall be taken to avoid deep cuts that could cause bleeding. Generally, bleeding does not occur unless notches pass through the bony tissue. If notches are too deep and bone is damaged, regeneration of the tissue may occur and the area notches will be sloughed. For example, several tortoises notched in 1980 and recaptured in 1987 have barely recognizable notches. For information on how to properly notch a desert tortoise, please refer to Chapter III, Protocols for Handling Live Tortoises from the Interim Techniques Handbook for Collecting and Analyzing Data on Desert Tortoise Populations and Habitats.

Tagging: Tagging was originally used in 1977 and appears to be as effective or better than notching for a long-term marking technique. Place a small dot of white paint on the fourth left costal scute; wait for the paint to dry. Write the identifying number for that tortoise on the dry dot using permanent black ink. Wait for the ink to dry and cover the dot and the ink with quick-drying clear epoxy. Note that the epoxy shall not touch the suture lines between the scutes. Numbers shall not be placed in the middle of the scute as this area may be sloughed or rubbed depending on the age of the tortoise and habitat in which it occurs.

In addition a photograph (35mm slide) of the carapace and fourth left costal scute shall be taken. If possible dust off the tortoise with a small brush to remove mud or dust from the scutes. Remember the brush must be either sterilized or disposed of after each use. Place a small piece of white paper (16 mm x 90 mm) on the edge of the shell with information on the study site name, date, and tortoise number. The tortoise shell area and fourth costal scute shall fill the slide frame. Drawings shall be made showing any anomalies (e.g., extra or missing marginal, costal, or vertebral scutes) or injuries (e.g., punctures holes from canines, tooth scrapes).

The responsible Federal agency shall develop its own cataloging format to enable it and others to track tortoises handled as a result of development projects.

4. A standard data sheet should be developed to record the following information:
   - A. Name of person collecting the animal.
   - B. Exact location and date of collection.
   - C. The individual number assigned to that animal.
   - D. The over-wintering location of the tortoise.
   - E. The release site and date of release of the animal.
   - F. Health condition of the tortoise, including measured weight and length at initial capture and release. In addition to this information complete the URTD checklist (Attachments A-2 & A-3).

G. Photographs of carapace, plastron, and fourth left costal scute.

H. The information specified in 4.A. through 4.G. must be supplied to the responsible Federal agency and the FWS immediately after cessation of both tortoise clearing and release activities. The information shall be provided in the form of a report accompanied by data sheets.

5. Tortoises found actively moving on the surface, and to be removed from the project site, shall be released between 150 and 1000 feet from the outer boundary of the project area nearest the capture point. Relocated tortoises shall be placed under a shrub in the shade. Tortoises shall be monitored at the release site until they are exhibiting normal behavior. Should the capture occur late in the day so the animal will not have sufficient time to find a suitable burrow for the night, the tortoise shall be placed in a clean cardboard box as described above and held in an appropriate place safe from predators and danger of hyperthermia, until release can occur in the morning.

6. If tortoises found in burrows, and to be removed from the project site and released into the wild, are removed from burrows between November 1 and March 15, shall be transported in cardboard boxes to the approved over-wintering site. Each tortoise shall be placed in an artificial burrow within a fenced enclosure with one tortoise per enclosure. Each enclosure must be separate from adjacent pens so that one tortoise can not place its head or limbs through the fence and physically contact a tortoise in an adjacent enclosure. Fencing does not need to be buried but shall be stable enough to preclude escape.

The main chamber of the burrow shall be constructed of plywood and the roof placed approximately 2.5 feet below the soil surface. The burrow's tunnel shall be eight to 10 feet long with a gentle slope (e.g., about 4:1). The tunnel shall be stabilized on the top with PVC pipe cut in half. The pipe shall be no smaller than 15 inch in diameter and soil shall be used to adjust tunnel to tortoise size. After placement of the tortoise in the burrow, the entrance of the tunnel shall be partially blocked with loose topsoil.

If any tortoise excavated is underweight, as determined by comparison to regressions developed by Dr. Michael Weinstein for the tortoises at the Honda project, the tortoise shall be placed in a room at a temperature of 90° to 100°F and allowed to soak in fresh water for two to three hours. After rehydration and drying, the tortoise shall be cooled to hibernation temperature slowly and placed in an artificial burrow. This procedure shall be implemented only by persons instructed in this manner of treatment.

Beginning in February, activity of the tortoises within the artificial burrows shall be monitored to determine an appropriate release time. Tortoises shall be released in the morning hours when temperatures are

conducive to activity. The appropriate time for release will probably occur in the third week of March.

Each tortoise shall be released between 150 and 1000 feet from the outer boundary of the project area nearest the capture point. Released tortoises shall be placed under a shrub in the shade. Releases shall occur at a temperature that is suitable for activity, with reasonable expectation that the temperature will remain within the tortoise's thermal preference long enough for the tortoise to adjust to its surroundings. Tortoises shall be monitored at the release site until they are exhibiting normal behavior. To facilitate this measure, each tortoise must be accompanied by one of the approved biologists. There shall be no mass releases of animals.

7. Tortoise eggs shall be moved to artificial nests either in the wild or at an approved facility. Biologists must receive special training in the procedures outlined below, but such training can be obtained after a nest is actually found. If this is done, the nest shall be carefully covered with soil so as not to move the eggs and protected until on-site training is provided. The responsible Federal agency shall ensure that this training is made available.

Any nest that is found shall be carefully excavated by hand at a time of day when the air temperature 6 inches above the ground is approximately equal to the soil temperature at egg level. Immediately upon finding a nest, large tool use shall be discontinued and the nest excavated by the biologist using his or her hands. Before disturbance of nest contents, each egg shall be gently marked with a small dot on the top using a felt-tipped pen to establish the egg's orientation in the nest. In handling nest contents, eggs must be maintained in this orientation at all times. Because egg shells become extremely fragile in the last few weeks before hatching, special care shall be taken with eggs found from August to mid-October. Because these eggs are very fragile, some may break during handling. This will be lethal to egg contents. Such an accident can be expected to occur until techniques are developed to avoid this type of incident. Broken eggs shall be buried nearby and left in the field, or the contents preserved and provided to qualified researchers.

The biologist shall measure and record the depth of the nest below the soil surface, the location of the nest in relation to any adjacent shrub (ie, whether on the north, south, east, or west side of the shrub), the species of shrub and its approximate foliage volume, and the soil type. Place approximately one inch of soil from the nest area in a bucket and carefully transfer the eggs to the bucket, maintaining egg orientation. Cover the eggs with soil that is free of cobbles and pebbles, to a depth equivalent to that in the original nest.

If good tortoise habitat is available in the general area, the eggs shall be relocated between 150 to 1,000 feet from outer boundary of the

project site. Prepare a nest with the same depth, orientation, location in relation to a specific shrub species, and in the same soil type as the original nest. Carefully transfer the eggs, maintaining their original orientation, to the new nest. The eggs shall be replaced so that they touch one another. Gently cover with soil from which cobbles and pebbles have been removed so that all the air spaces around the eggs are filled. Relocated nests in the wild shall be monitored by a qualified biologist. The monitoring program shall be developed in consultation with FWS.

If a suitable site for a new nest is not available in the wild, the eggs shall be prepared for incubation in a suitable holding facility. Place a small amount of soil in a bucket and transfer the eggs to the bucket using the technique specified above, making sure the eggs are touching one another. Carefully fill the bucket to the depth of the original nest, but leave the top of the soil layer 3 inches below the rim of the bucket so that future hatchlings cannot escape. Bury the bucket in soil in a safe location at an approved holding facility.

The biologist shall record in detail all the procedures used in moving eggs. Personnel caring for incubating eggs at a facility shall maintain a record of where the eggs were found, method of incubation, length of time and conditions under which the eggs were incubated, observations of eggs during the incubation period, information about hatchling health and behavior, and disposition of the hatchlings.

8. Should any deviation from the procedures outlined above be necessary, the approved biologist shall contact FWS as soon as possible.

9. A final report, containing all the information noted above and including release information, must be supplied to FWS and the responsible Federal agency within one month of the final releases or disposition of tortoises.